WO 2004/086291 PCT/US2004/008138

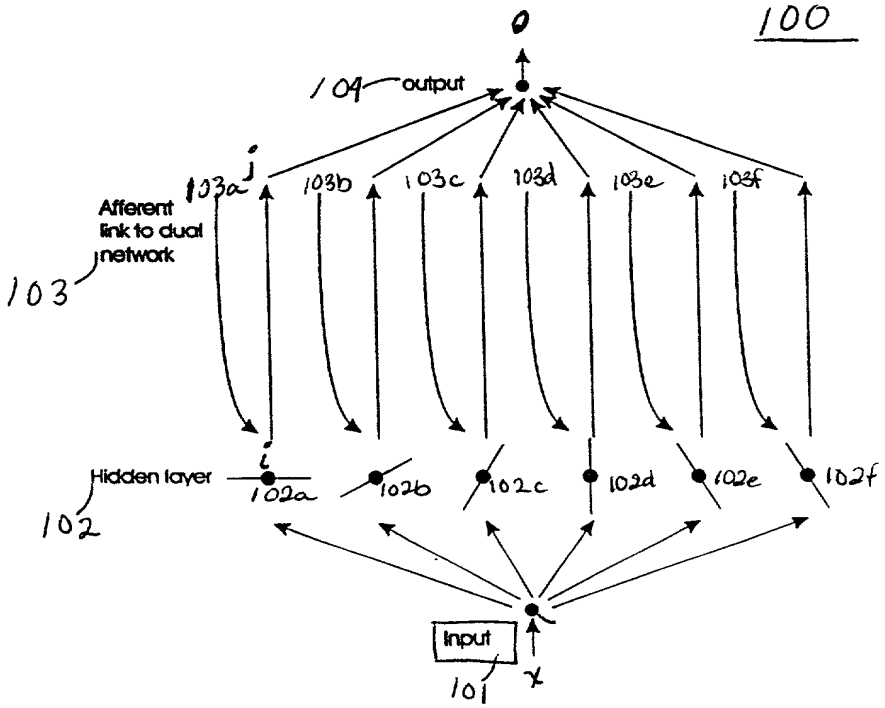

Figure 1

PCT/US2004/026010

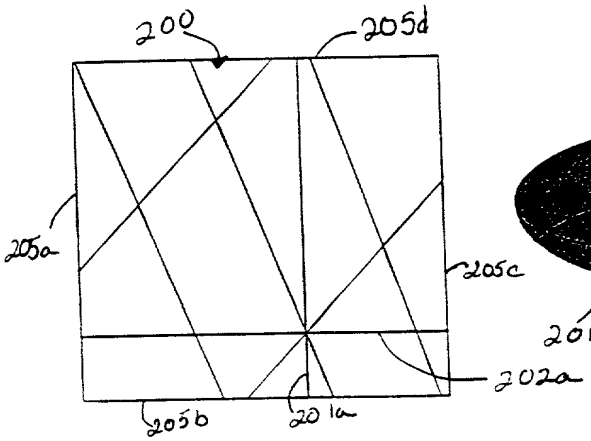

Figure 2a

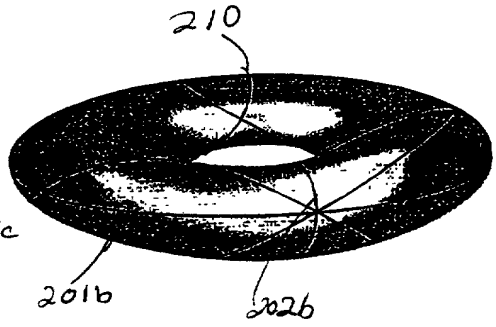

Figure 2b

09/529,280 09/529,280

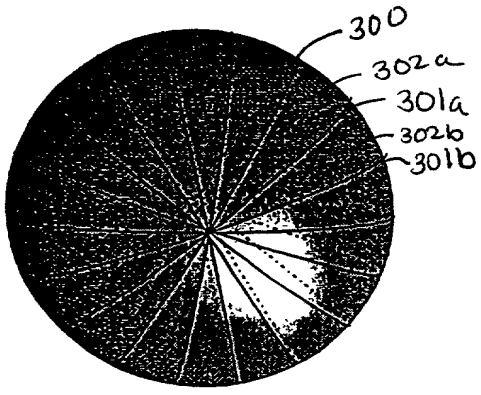

Figure 3a

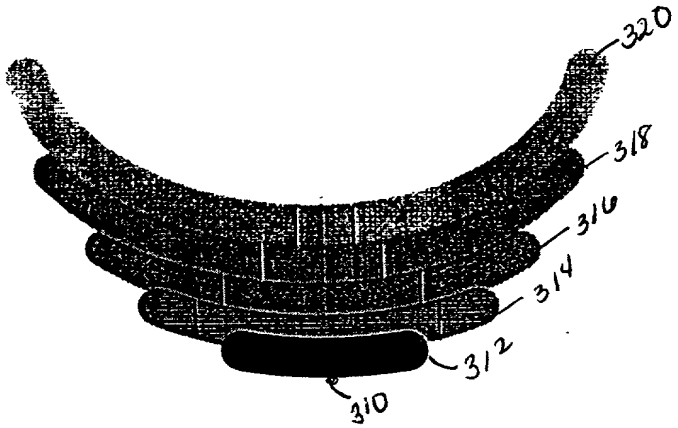

Figure 3b

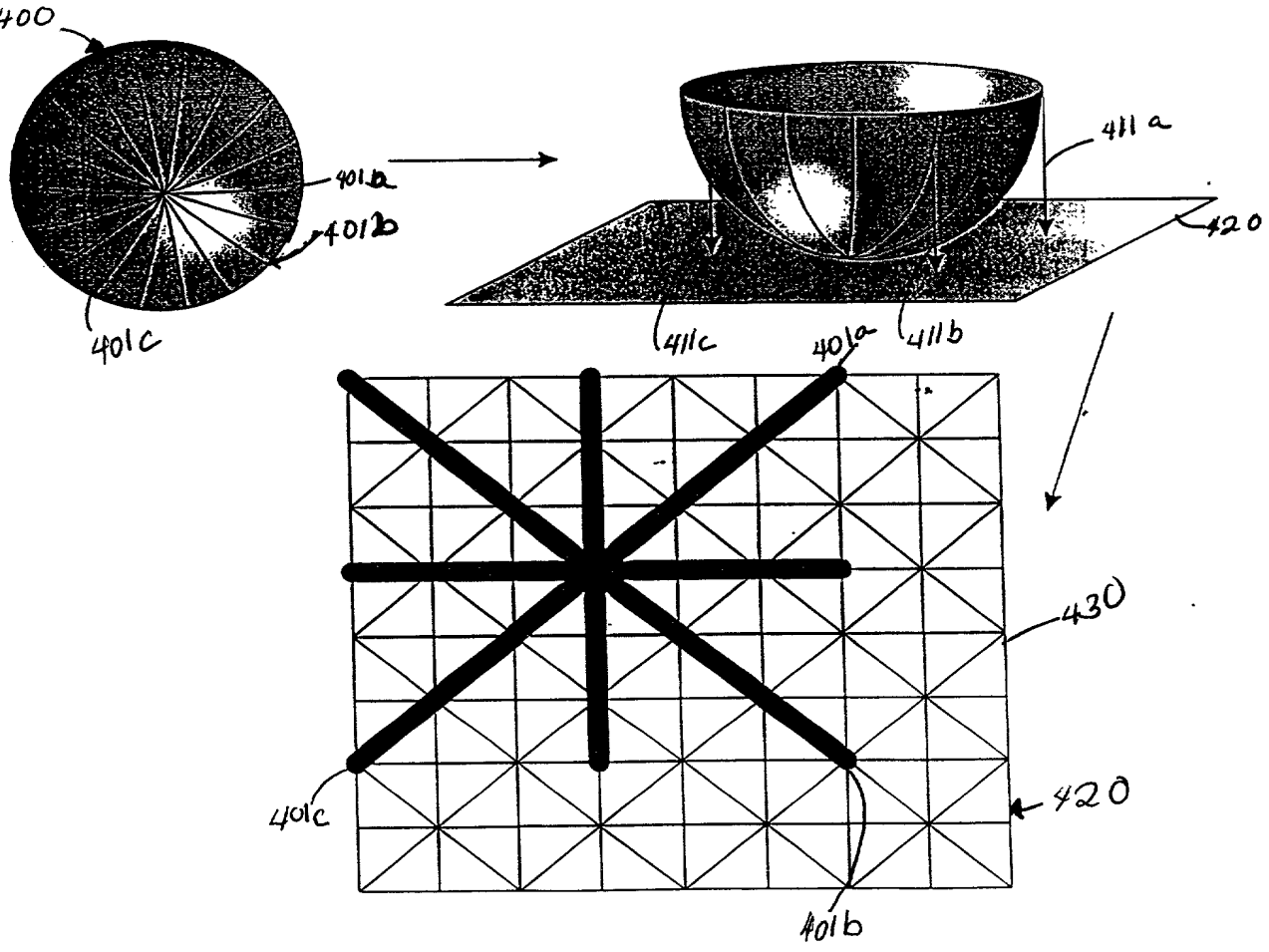

Figure 4

DRAWINGS - Page 5 of 14

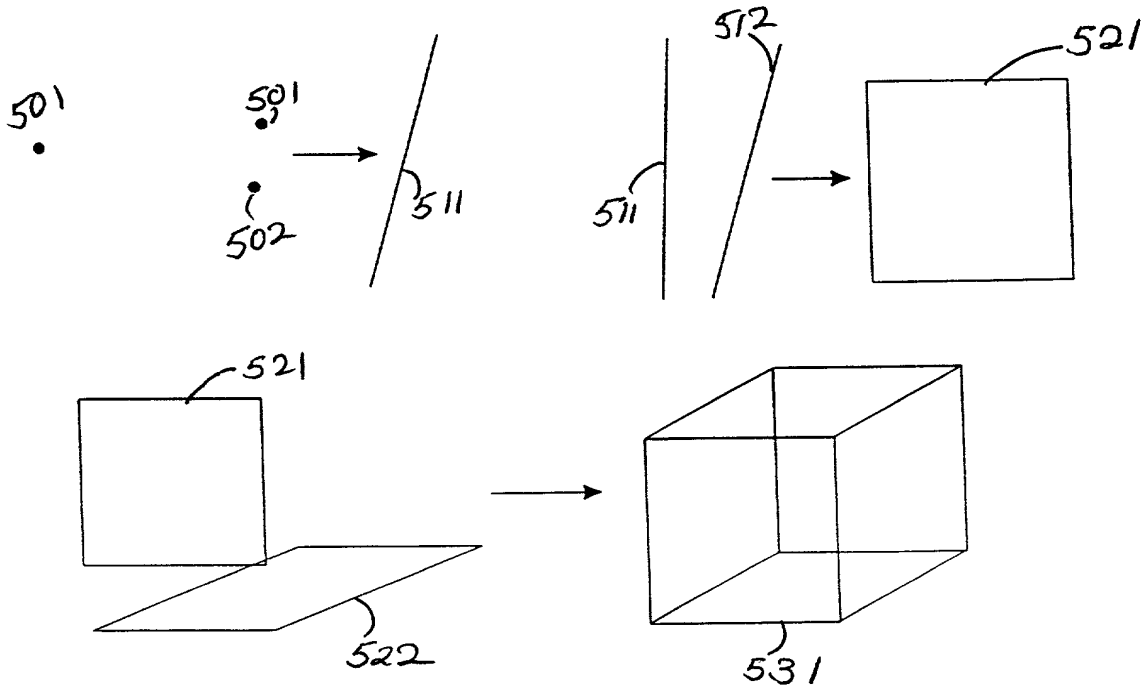

Figure 5

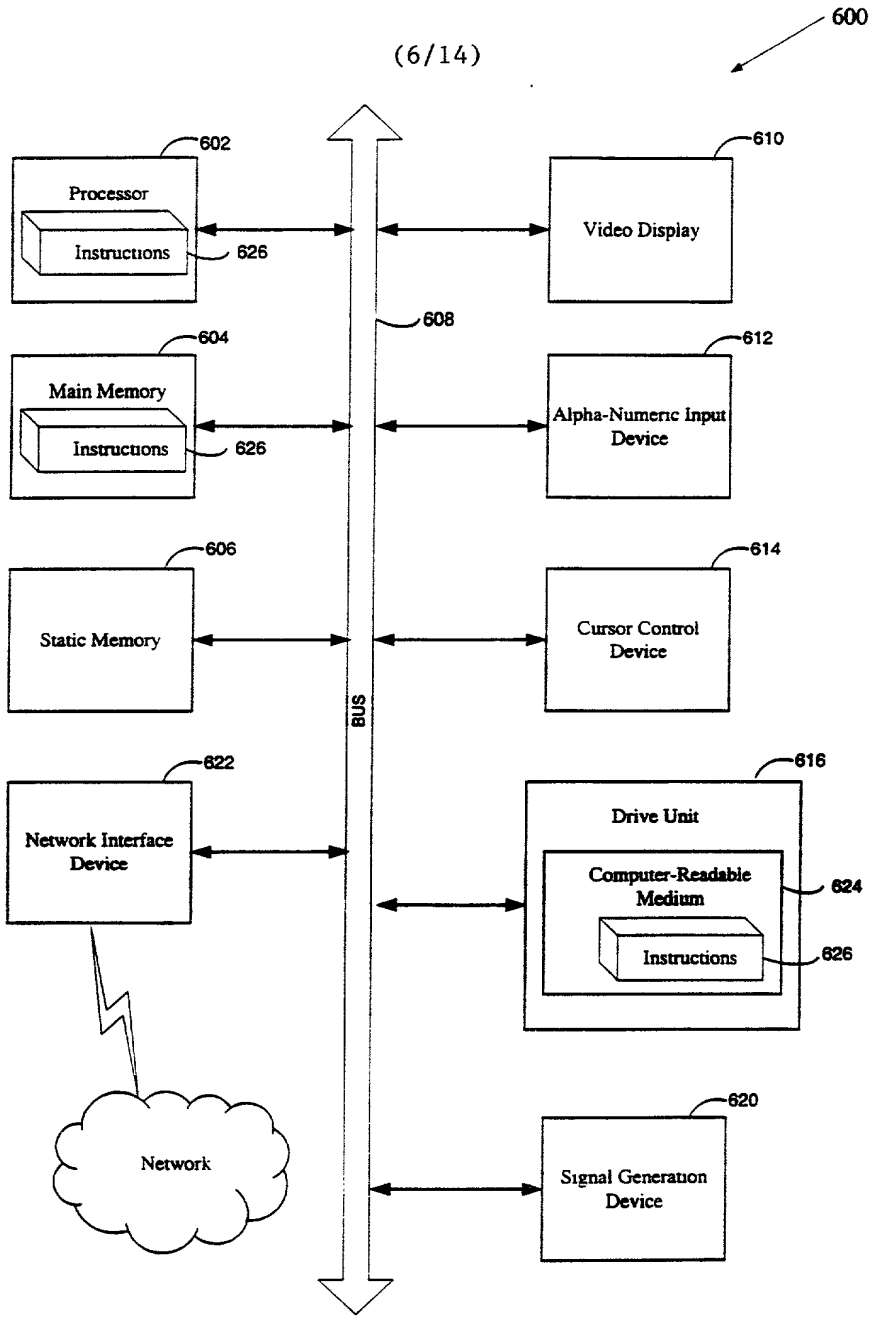
600
602
Processor
Instructions
626
610
Video Display
608
604
Main Memory
Instructions
626
612
Alpha-Numeric Input Device
606
Static Memory
614
Cursor Control Device
BUS
622
Network Interface Device
616
Drive Unit
Computer-Readable Medium
624
Instructions
626
Network
620
Signal Generation Device

Figure 6

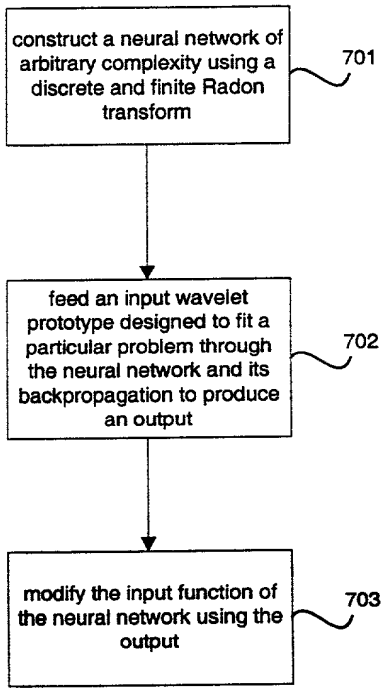
construct a neural network of arbitrary complexity using a discrete and finite Radon transform
701
feed an input wavelet prototype designed to fit a particular problem through the neural network and its backpropagation to produce an output
702
modify the input function of the neural network using the output
703

Figure 7

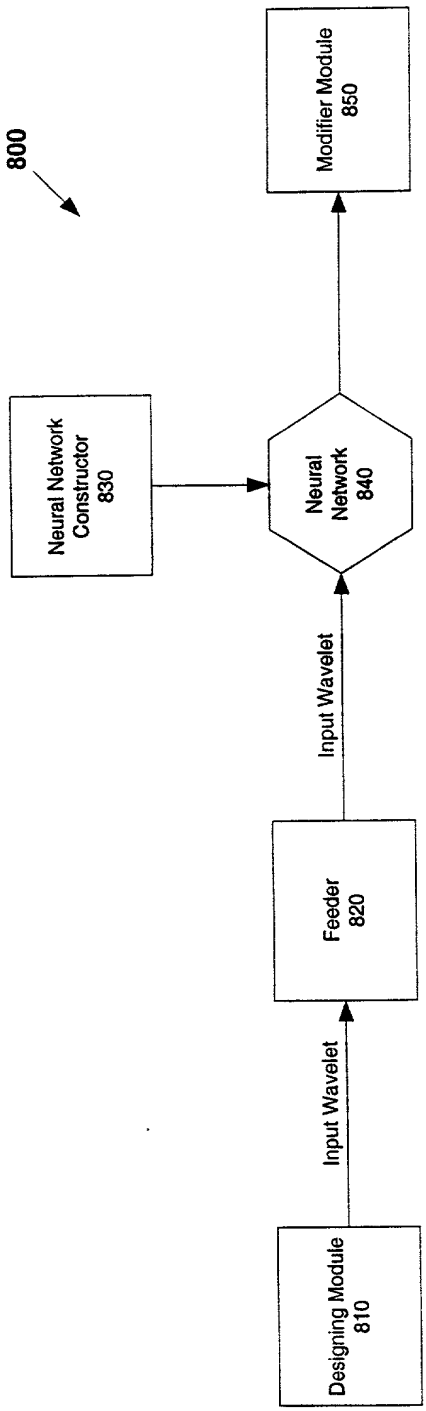
800
Designing Module
810
Input Wavelet
Feeder
820
Input Wavelet
Neural Network
Constructor
830
Neural
Network
840
Modifier Module
850

Figure 8

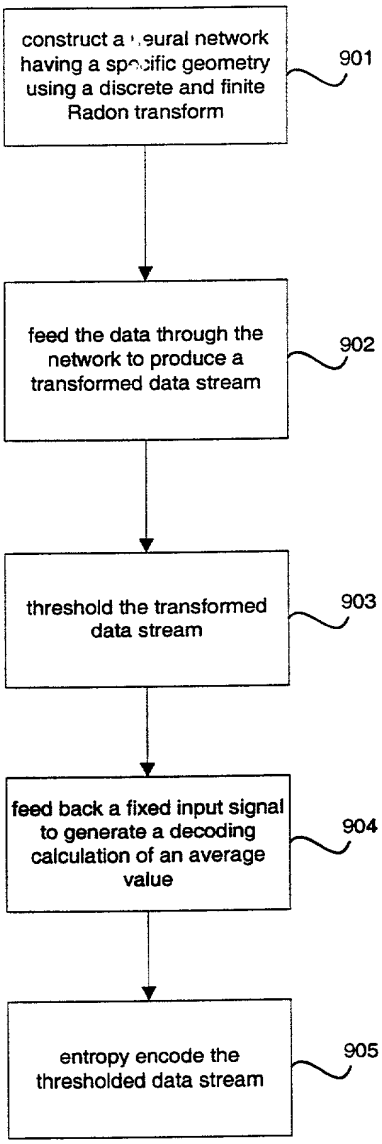
construct a neural network having a specific geometry using a discrete and finite Radon transform
901
feed the data through the network to produce a transformed data stream
902
threshold the transformed data stream
903
feed back a fixed input signal to generate a decoding calculation of an average value
904
entropy encode the thresholded data stream
905

Figure 9

TO2210 082494

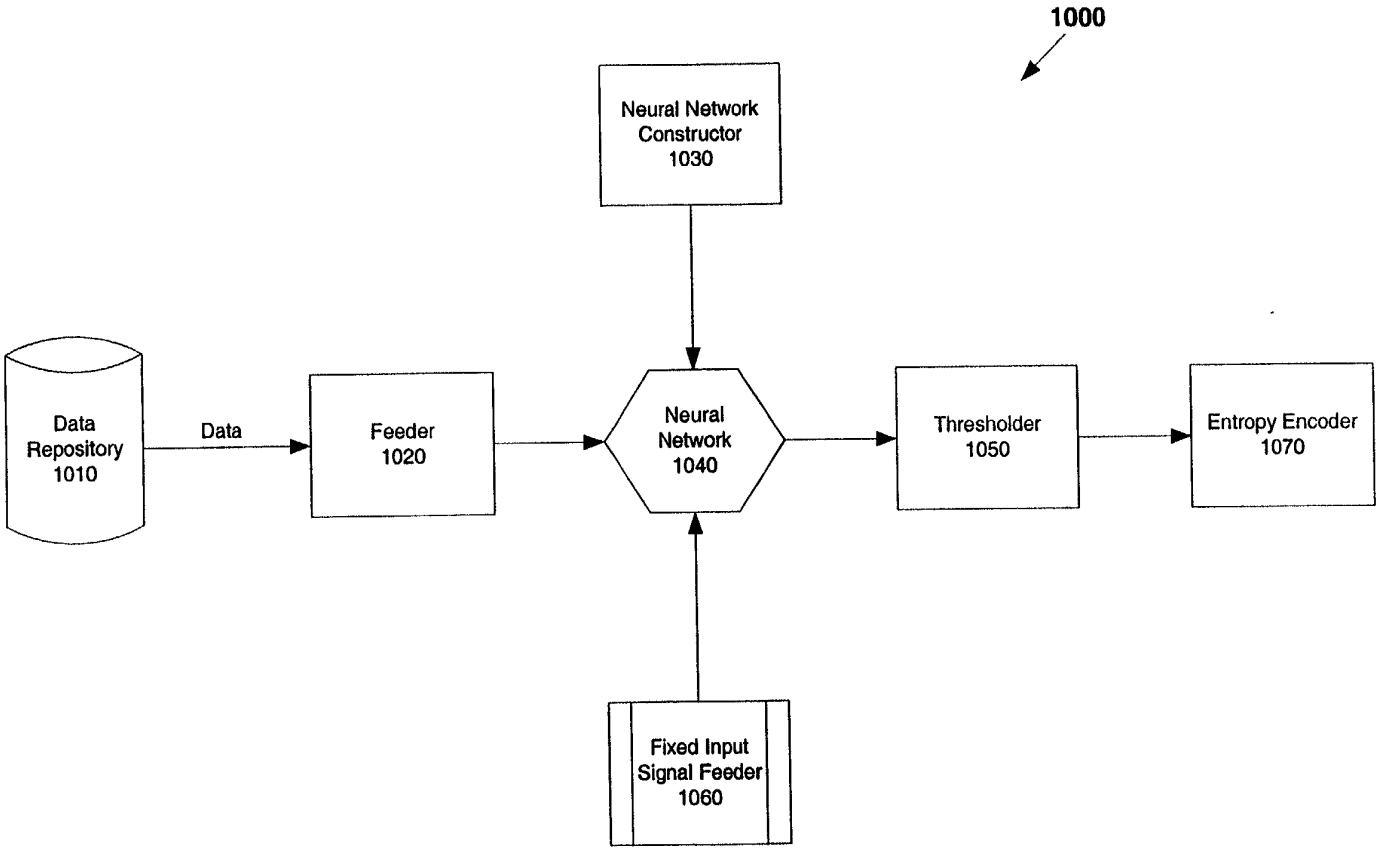

Figure 10

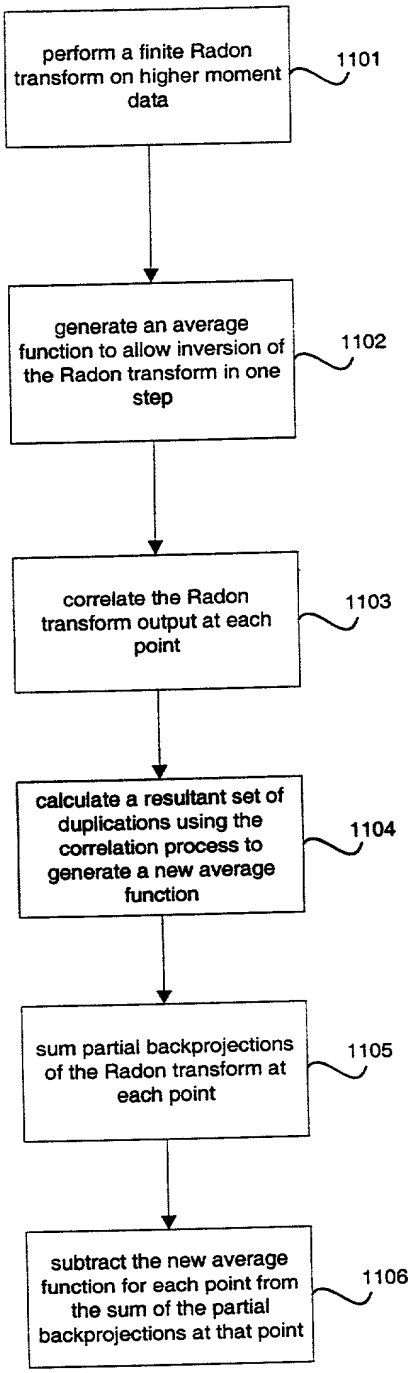
perform a finite Radon transform on higher moment data
1101
generate an average function to allow inversion of the Radon transform in one step
1102
correlate the Radon transform output at each point
1103
calculate a resultant set of duplications using the correlation process to generate a new average function
1104
sum partial backprojections of the Radon transform at each point
1105
subtract the new average function for each point from the sum of the partial backprojections at that point
1106

Figure 11

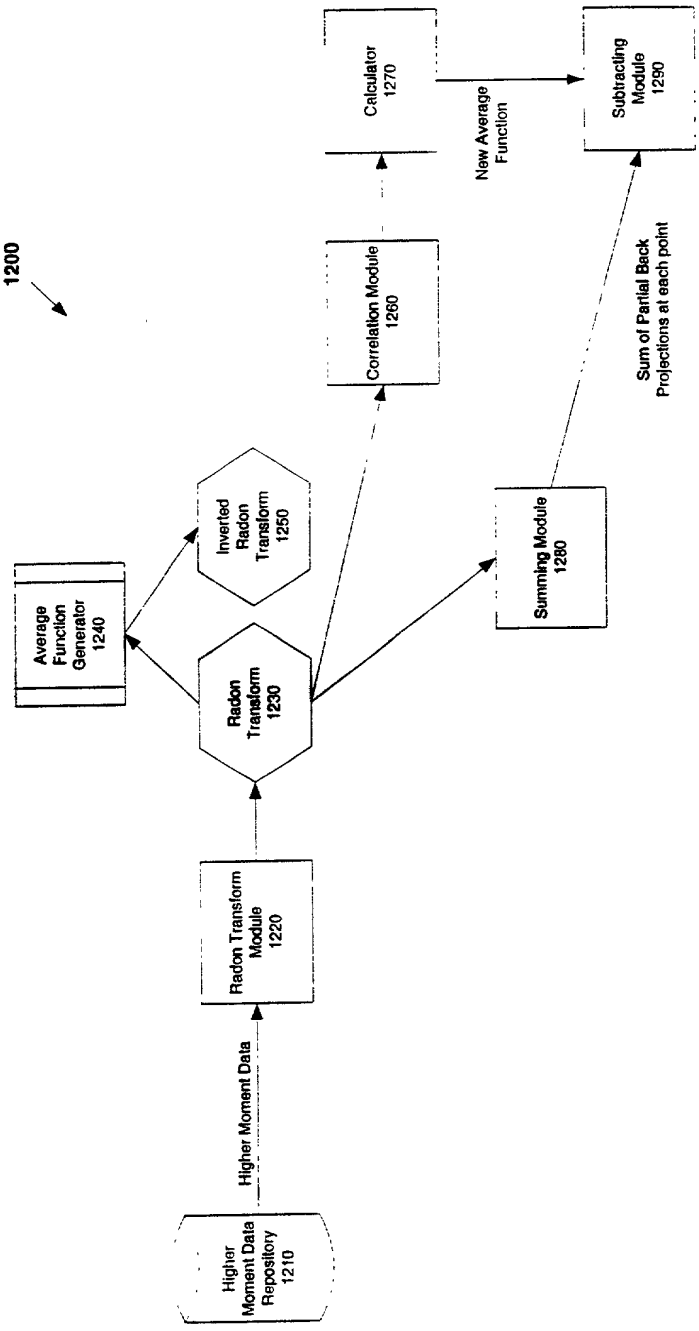
1200
Higher Moment Data Repository 1210
Higher Moment Data
Radon Transform Module 1220
Radon Transform 1230
Average Function Generator 1240
Inverted Radon Transform 1250
Correlation Module 1260
Calculator 1270
New Average Function
Summing Module 1280
Sum of Partial Back Projections at each point
Subtracting Module 1290

Figure 12

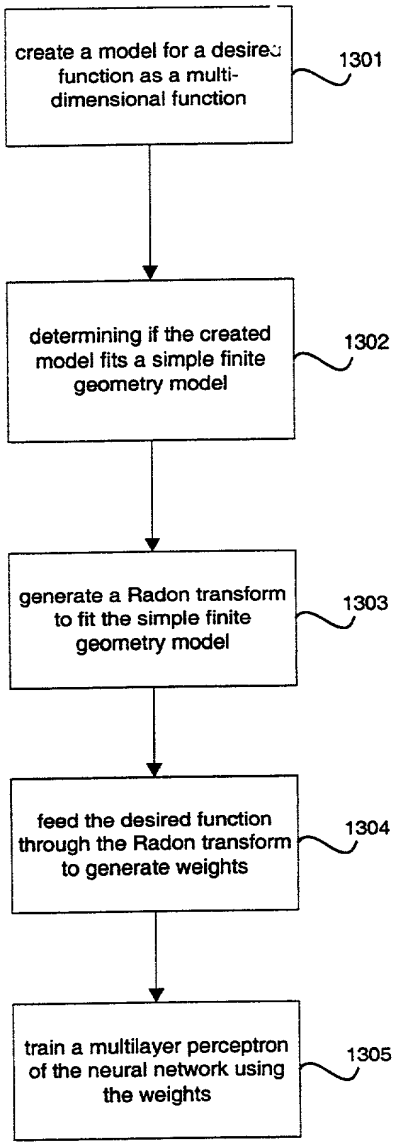
create a model for a desired function as a multi-dimensional function
1301
determining if the created model fits a simple finite geometry model
1302
generate a Radon transform to fit the simple finite geometry model
1303
feed the desired function through the Radon transform to generate weights
1304
train a multilayer perceptron of the neural network using the weights
1305

Figure 13

TO22TO 082/09260

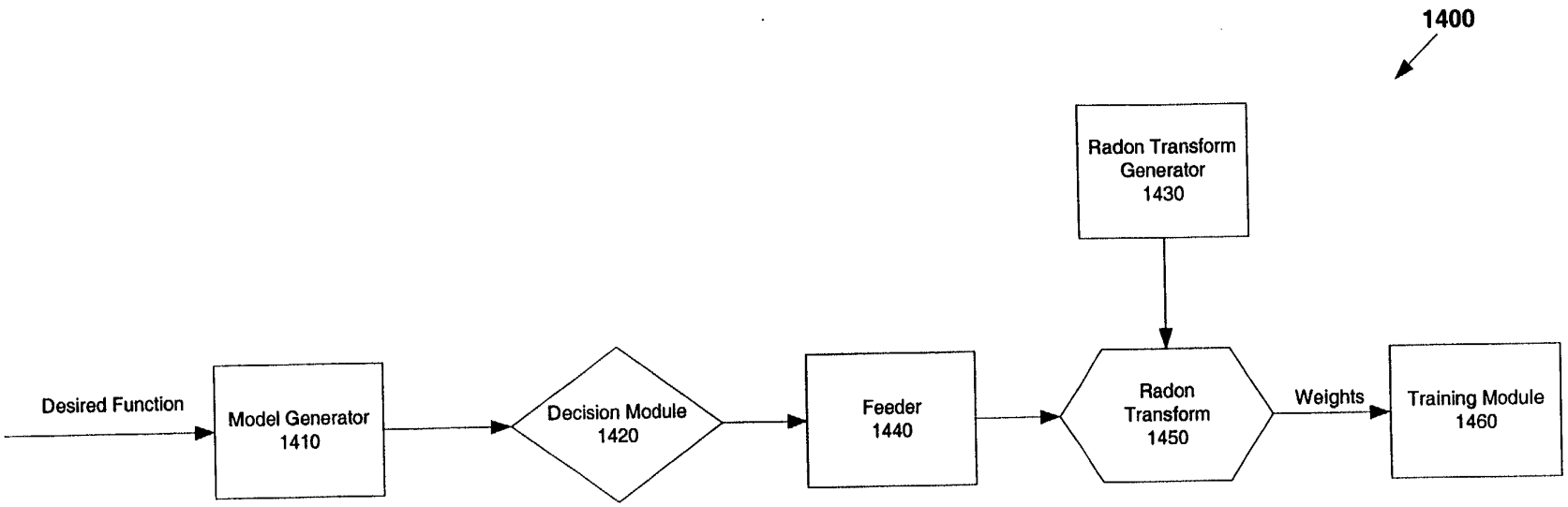

Figure 14